survival of all cases of head and neck cancer at 3 years is above 60%. The complete response was 53%, persistence disease 3%, local progression 4.5%. Distance metastasis: 7%.
Conclusions. IMRT treatment is the technique of choice to provide a high level of coverage with a low threshold dose distribution in critical organs, allowing Radiotherapy with moderate toxicity and local control. Overall survival results are comparable to those published in the literature.

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Lymph node control with RT/QT in tumors of head and neck N0, staged by CT and PET. Is necessary to dose level used currently for subclinical disease?

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Background. High levels of local and regional control obtained with RT-QT not excessive volumes of disease, the accuracy of the staging with CT and PET and accuracy in the delivery of the dose in the volumes to radiate with IMRT techniques they do that you might have the possibility of reducing the dose in regions effectively irradiated with the consequent advantage in acute and late toxicity.
Methods and materials. Retrospective analysis of 26 patients (6 women and 20 men) with mean age: 61 years and diagnosed with head and Neck Cancer: nasofaringe: 4 oropharynx: 1, paranasal sinuses: 4, oral: 2, supraglottis: 9, glottis: 6 (T2, T3 and T4) treated in HUPH between January 1, 2009 and February 30, 2013 in N0 after CT and PET situation and treated with concomitant RT/QT.
Results. 24 were irradiated by IMRT and 2 with conformal 3D. Dose happens of RT: 68.4 Gy. Dose happens of fractionations on the GTV1: 2.1 Gy/day. Minimum dose in elective volumes 54–66 Gy with subdivisions of 1.6–1.8 Gy/day. Median of follow-up: 17.8 months (min 24–max 45). A patient lost in the follow-up. The local control of the disease was achieved in 24 patients (92.3%). Overall survival a year: 91%, 2 years: 82% at 3 years: 71% disease-free survival and survival free of local relapse 2 years: 92%. Free survival of lymph node recurrence and within distance 2 years: 91%. The date of completion of the study, 4 (15.3%) had died, only one due to the tumor.
Conclusions. With the limitations of this study by the small number of analyzed patients and follow-up can venture that the excellent control of the lymph node disease in these patients at stage N0 CT and PET would justify an investigation of greater importance directed to reduce the dose of RT in elective areas.

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Molecular basis of the radiotherapy-induced mucositis. Beneficial effects of melatonin

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Aims. Radiotherapy-induced oral mucositis is one of the main side-effects of this therapy in patients with cancer. The molecular mechanisms of the oral mucositis are currently unknown, thus difficulting the treatment. It was reported that during cell stress, the free radicals produced by the mitochondria are responsible for the NLRP3 inflammasome activation, which in turn yield intracellular changes conducting to pro-inflammatory cytokines activation. During these responses, the NF-kB pathway is also activated, increasing the pro-inflammatory response. The objectives of this study were to analyze the molecular pathways involved in the development of oral mucositis, and to evaluate whether melatonin can prevent this pathology.
Materials and methods. Male Wistar rats were subjected to irradiation with a X-ray YXLON Y.Tu 320-D03 irradiator, and the animals received a dose of 7.5 Gy/day for 5 days in their tongues. Rats were treated with 45 mg/day melatonin or vehicle during 21 days post-irradiation, either by local application into their mouths (melatonin gel) or by sc injection. After treatments, rat tongues were obtained for the subsequent determinations. Pharmaceutical preparation of melatonin in gel is currently under patent.
Results. We observe an amelioration of the acute mucosal effects of radiotherapy with topical gel melatonin. Melatonin decreases the expression of NF-kB, iNOS/i-mtNOS, NLRP3, ASC, caspase-1, and proinflammatory cytokines. Melatonin restored mitochondrial function increasing the activity of the mitochondrial antioxidant enzymes and respiratory chain activity. Electron microscopy also showed tongue's mitochondria significantly damaged and broken after radiotherapy, which was also prevented by local melatonin gel administration, and we observe a decrease of fibrosis with melatonin.
Conclusions. Considering the low toxicity of melatonin even during long term, which makes possible its clinical use, our results provide evidence for the therapeutic value of melatonin to prevent mucositis in cancer patients. Supported in part by grant no. SAF2009-14037

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